

Nevada Test Site, Frenchman Flat Test Facility,  
Well Five Booster Stations (Pumping Stations Nos. 1 - 4)  
Area 5, Frenchman Flat  
West Side of Frenchman Dry Lake Bed  
Mercury Vicinity  
Nye County  
Nevada

HAER No. NV-37-B

HAER  
NEV  
12-MERC.V,  
2B-1

## PHOTOGRAPHS

## WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Western Region  
Department of the Interior  
San Francisco, California 94107

**HISTORIC AMERICAN ENGINEERING RECORD**  
**NEVADA TEST SITE, FRENCHMAN FLAT TEST FACILITY,**  
**WELL FIVE BOOSTER STATIONS (PUMPING STATIONS Nos. 1 - 4)**

HAER  
NEV  
12-MERC.V)  
2B-

**HAER No. NV-37-B**

**Location:** Four booster stations linked by an underground pipeline are located on Frenchman Flat, Area 5, Nevada Test Site. The booster stations are linked to three interconnected wells (5A, 5B and 5C) near Frenchman dry lake bed. These wells are located on the west side of Frenchman dry lake bed near the 3100 ft (945 m) elevation. The first booster station (Station 1) is at Well 5A; the others are uphill and run parallel to Short Pole Line Road. The last (Station 4) is at the 4000 ft (1219 m) elevation near Checkpoint Pass. It is approximately 3 mi (4.8 km) north of Mercury, Nye County, Nevada.

USGS Frenchman Lake (1986) and Mercury (photorevised 1983) 7.5' Quadrangles

Universal Transverse Mercator Coordinates:

Station 1: 11. 592940. 4070360  
Station 2: 11. 591980. 4066560  
Station 3: 11. 591840. 4063900  
Station 4: 11. 591800. 4062200

**Present Owner:** U.S. National Nuclear Security Administration,  
Nevada Operations Office  
P.O. Box 98518  
Las Vegas, NV 89139-8518

**Present Use:** Vacant

**Significance:** The Well 5 Booster Stations have been determined eligible to the National Register of Historic Places because of their association with historical events of exceptional importance. These poured-concrete structures were constructed to provide water for general infrastructure to support the nuclear weapons testing program (including supplying water for the support town, Mercury, construction activities, etc.). Today, they provide a link between the U.S. nuclear weapons testing programs and the infrastructural support required by the establishment of an atomic weapons test site.

## PART I. HISTORICAL INFORMATION

### A. Physical History

1. Date of erection: The Well 5 Booster Stations were erected in 1951 during the construction project code named "Mercury" that established the infrastructure for the Nevada Test Site (NTS). This time frame is based on the dates of the architectural drawings (Holmes and Narver 1951a, b and c).
2. Architect/Designer: The engineering records indicate Holmes and Narver, Inc. (H&N) served in this capacity. H&N was established in 1932 in Los Angeles, California following the Long Beach earthquake of that same year. H&N obtained numerous defense contracts during World War II (WW II), including the building of Camp Roberts and the construction of military facilities on Okinawa. After WW II, the Atomic Energy Commission (AEC) designated H&N as the architect and operator of the atomic testing facilities in the Pacific. They built the test sites on Eniwetok and Bikini as well as providing all the camp services. In 1956, H&N took over the NTS engineering contract from the Silas Mason Company. Initially, H&N maintained only a small field office at the NTS with the major engineering support coming out of the Los Angeles office. Between 1958 and 1960, H&N established a design division in Las Vegas on Main Street. H&N still maintains a Las Vegas office at 1515 E. Tropicana Avenue. No other information is known about the individual designer.
3. Original and subsequent owners: The property on which the Booster Stations sit was originally part of the U.S. Air Force's Las Vegas-Tonopah Bombing and Gunnery Range. On December 21, 1951, the Nevada Proving Ground was established when the AEC entered into a lease agreement with the Air Force to use a 600+-square-mile portion of the gunnery range for nuclear testing. Public Land Order 805 made this arrangement permanent on February 19, 1952. Since that time the land has been administered by the AEC and its successors. The AEC continued to administer the land until 1974 when the Energy Research and Development Administration (ERDA) took its place. With the passage of the Department of Energy Organization Act in August 1977, control of the test site passed to the Department of Energy (DOE). In 2001, the Nevada Operations Office of DOE was designated the National Nuclear Security Administration, Nevada Operations Office (NNSA/NV) and continues to administer the property today.
4. Builder, contractor, suppliers: The actual builder of the Well 5 Booster Stations has not been determined, but it is likely that the firm of Lembke, Clough and King, Inc. was responsible. According to an article appearing in the Las Vegas Review-Journal, they "built a great many of the buildings and structures in the classified areas, as well as the entire facilities at Camp Mercury, ..." (Anonymous 1953). Information on individual suppliers is not known.

5. Original plans and construction: The Well 5 Booster Stations original plans and construction indicate two room structures made of poured concrete. Oriented north-south, the north room is a reservoir room measuring 17 ft (5.2 m) north-south x 17 ft, 4 in (5.3 m) east-west and 11 ft, 6 in (3.5 m) tall. The south room is a pump house measuring 13 ft (4.0 m) north-south x 17 ft, 4 in (5.3 m) east-west and 8 ft, 4.5 in (2.6 m) tall. The roof over both rooms is concrete slab. Entry to the reservoir room is through a manhole in the roof whereas entry to the pump house room is through a hinged door on the east side. The only windows are in the pump house room. They are steel commercial projected windows (type B 23141); two are located on the south elevation. Each pump house contained a configuration of pipes and pumps.
6. Alterations and additions: Although remnants of the pipes and pumps are still located in each of the booster stations, some variation exists with Booster Station 1 having the most complete set and Booster Station 4 having the least. The only addition is a chlorinator attached to Booster Station 4. It is enclosed in a Butler Building that measures 6 ft (1.8 m) wide by 9 ft, 10 in (3 m) deep. It is 9 ft (2.7 m) tall at the peak with a gabled roof. Inside is a scale (made by Fairbanks Morse) that was used to hold the chlorine in compressed gas cylinders. A meter registering gallons/minute is located in the Booster Station. A log on top of the meter has its last entry on 7/14/73.

B. Historical Context

Refer to HAER Report NV-37-A for general historical information.

The Well 5 Booster Stations operated from 1951 to 1973 on Frenchman Flat (Figures 1 - 3). Infrastructural properties are those buildings and structures that allow for development of the intended purpose of the NTS. These include roads, water lines, generator stations, etc.

Water-booster stations operated with Well 5 to provide water for general activities to support the nuclear weapons testing program. This included supplying water for construction activities, the support town of Mercury, etc. Four have been recorded and are considered important for understanding the Test Site's developmental history. It should be noted that they are considered to be in good condition and that they were located at a distance where they were relatively unaffected by the nuclear weapons tests conducted on the dry lake bed.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. Architectural character: Functional requirements dictated size of rooms and general character. Beck et al. (1996) have used the term NTS vernacular to describe these types of buildings.

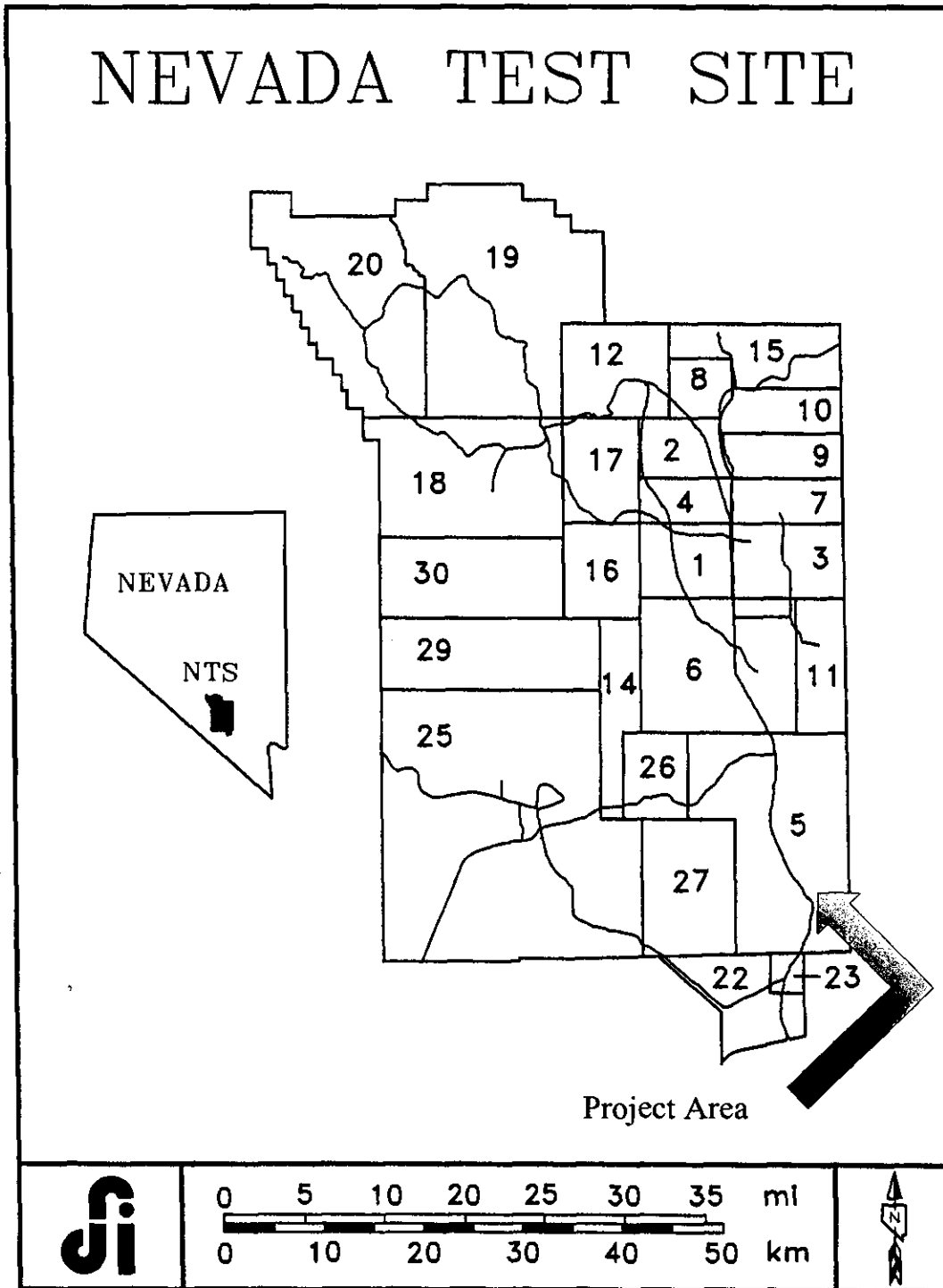


Figure 1. Location of Well 5 Booster Stations on the NTS.

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(Pumping Stations Nos. 1 - 4)  
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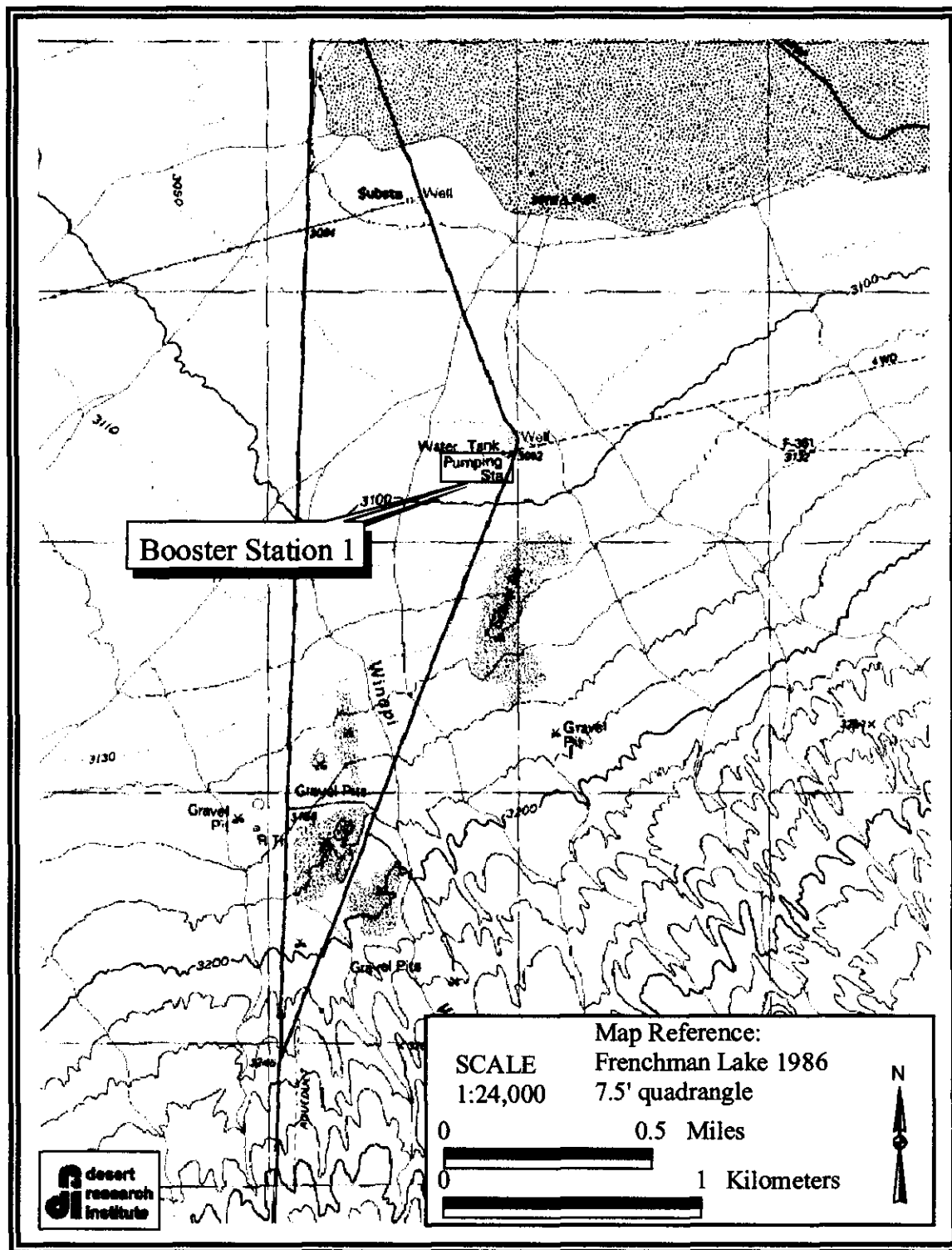


Figure 2. Location of Well 5 Booster Station 1 on Frenchman Flat.

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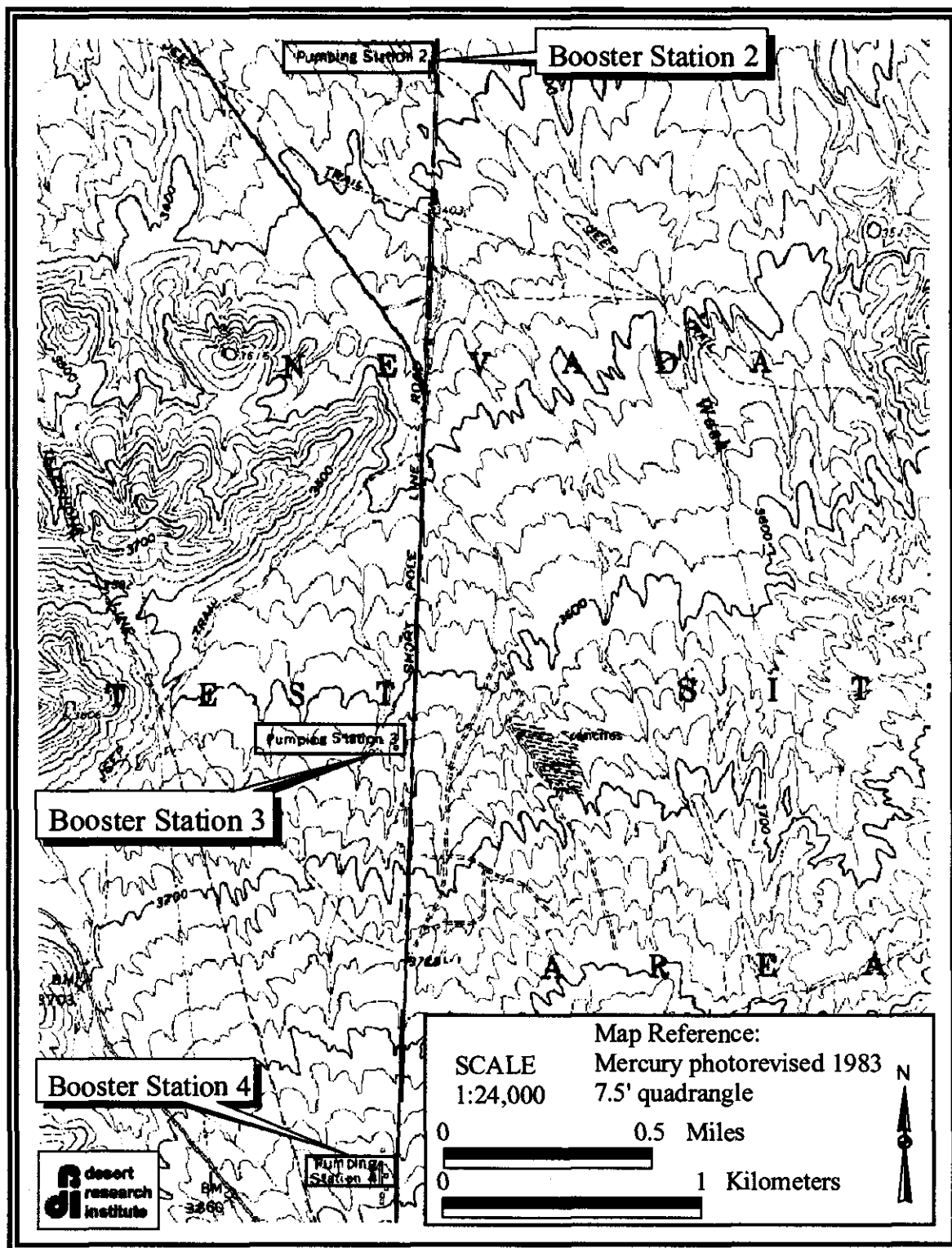


Figure 3. Location of Well 5 Booster Stations 2 through 4 on Frenchman Flat.

2. Condition of fabric: Original concrete walls indicate some weathering but little or no structural damage.

B. Description of Exterior

1. Overall dimensions: All four booster stations have a footprint measuring 30 ft (9.1 m) north-south x 17 ft, 4 in (5.3 m) east-west. The roof height is tiered where it reaches 11 ft, 6 in (3.5 m) tall over the reservoir side and 8 ft, 4.5 in (2.6 m) tall over the pump house.
2. Foundations: The structures were built on 3-ft (1-m) thick concrete pads.
3. Walls: Reinforced concrete measuring 6-in (15.2-cm) thick around the pump house and 8-in (20.3-cm) thick around the reservoir.
4. Structural system, framing: Described walls (above) serve as structural system.
5. Porches, stoops, balconies, bulkheads: One 6-in (15.2-cm) thick poured-concrete porch measuring 4 x 3.5 ft (1.2 x 1.1 m) at doorway to pump house.
6. Chimneys: None.
7. Openings:
  - a. Doorways and doors: A doorway and door is located on the east elevation of each booster station and provides access to the pump house. The doors measure 3 x 7 ft (1 x 2.1 m) and 1.75-in (4.4-cm) thick. They are the pressed steel industrial type with glass in the upper half.
  - b. Windows and shutters: Two windows are located in the south-facing wall of the pump house room. They are steel commercial projected windows (type B 23141) measuring 3 ft, 8.875 in x 4 ft, 1 in (1.1 x 1.2 m) raised 2 ft, 11 in (1 m) above the floor. A louvered shutter measuring 3 x 1.5 ft (1.0 x 0.5 m) is located in the west-facing wall raised 1 ft (0.3 m) above the floor. The louver is zinc coated steel frame with louver slides set in mastic all around.
8. Roof: All four structures have slab roofs.
  - a. Shape, covering: Flat, no covering.
  - b. Cornice, eaves: None.
  - c. Dormers, cupolas, towers: None.



C. Description of Interior

1. Floor plans:
  - a. Basement: None.
  - b. First floor: The interior is simple. The reservoir rooms are open rectangles with a small pit located adjacent to the middle of the pump house wall from which the water is pumped. The pump house room is similarly an open rectangle with a 3 ft (1 m) trench in the concrete floor that housed pumping equipment.
  - c. Second floor: None.
2. Stairways: None.
3. Flooring: Unfinished concrete.
4. Wall and ceiling finish: None.
5. Openings: No interior doorways. Window and door openings described for exterior have steel-frame internal trim.
6. Decorative features and trim: None
7. Hardware: None
8. Mechanical equipment:
  - a. Heating, air conditioning, ventilation: No heating. No air conditioning. Ventilation provided by an evaporative cooler installed on the roof of the pump house room.
  - b. Lighting: Overhead incandescent bulbs with baked-enamel shade.
  - c. Plumbing: See above.

D. Site

1. General setting and orientation: The Well 5 Booster Stations are located along the Short Pole Line Road approximately 3 mi (4.8 km) north of Mercury in Area 5 of the Nevada Test Site (NTS). This area is in the southern half of Frenchman Flat. Sediments are mostly alluvial, as tributary streams erode the surrounding mountains and deposit sediments in Yucca Flat. Fernald et al. (1968) indicate they are late Pleistocene and Holocene age deposits. The average elevation is approximately 3400 ft (1036 m). The terrain slopes gently (2-4 percent) to the dry lake bed.
2. Historic landscape design: None.

3. Outbuildings: Booster Station 4 has a chlorinator (described previously).

PART III. SOURCES OF INFORMATION

A. Original Architectural Drawings

Holmes and Narver, Inc., 1951a, *Water Supply Line Wells to Location "B" Alternate Test Site*. Microfiche on file, drawing no. ATS-R/5011-29, Archives and Records Center (formerly the Engineering Records Library), Mercury, NV. [engineering drawings for Booster Station 2]

Holmes and Narver, Inc., 1951b, *Water Supply Line Wells to Location "B" Alternate Test Site*. Microfiche on file, drawing no. ATS-R/5012-30, Archives and Records Center (formerly the Engineering Records Library), Mercury, NV. [engineering drawings for Booster Station 3]

Holmes and Narver, Inc., 1951c, *Water Supply Line Wells to Location "B" Alternate Test Site*. Microfiche on file, drawing no. ATS-R/5013-31, Archives and Records Center (formerly the Engineering Records Library), Mercury, NV. [engineering drawings for Booster Station 4]

Holmes and Narver, Inc. 1959, Area 5 (Frenchman Flat). Microfiche on file, drawing nos. BD-5-AI, Archives and Records Center (formerly the Engineering Records Library), Mercury, NV. [site layout for the infrastructural facilities in Frenchman Flat]

B. Early Views: None.

C. Interviews: One interview was conducted with a knowledgeable informant that is associated with the Well 5 Booster Stations. He is Mr. Kevin Olsen.

1. Kevin Olsen was interviewed on site on February 6, 2001. His association with the booster stations comes from his employment with Bechtel Nevada in the facilities department. He is assigned to the excess facilities project. He provided much of the information on the chlorinator addition.

D. Bibliography: The extent of published materials concerning the Well 5 Booster Stations is minimal. Archived materials were researched at the Coordination and Information Center (CIC) Library in Las Vegas, Bechtel Nevada's (BN's) Remote Sensing Laboratory photographic services in Las Vegas and the Archives and Records Center (formerly the Engineering Records Library) in Mercury at the NTS. The following list is based on those publications that were useful during historical and documentary research at the site.

Anonymous

1953 "Lembke, Clough, King Firm Widely Known in West," *Las Vegas Review-Journal*, September 27.

A newspaper article that details the business of the contracting firm of Lembke, Clough and King in the West in general and specifically at the NTS.

Ball, H.

- 1986 *Justice Downwind: America's Testing Program in the 1950s*. Oxford University Press, New York.

This book provides an overview of the nuclear testing program from the view of downwinders.

- Beck, Colleen M., Nancy Goldenberg, William Gray Johnson and Clayton Sellers  
1996 *Nevada Test Site Historic Building Survey*. Desert Research Institute, Quaternary Sciences Center Technical Report No. 87 (prepared jointly with Carey and Company for the Department of Energy, Nevada Operations Office), Las Vegas, Available through the Office of Scientific and Technical Information, Oak Ridge.

This is a technical report. It provides a sketch of the history of the Nevada Test Site and identifies structures and buildings likely to be important in the development of historic districts on the NTS.

Dean, Gordon

- 1950 Draft Memorandum to the Chairman, MLC, CIC Library, document number 30429, Las Vegas.

This memo details Dean's views on the establishment of a continental test site.

Fernald, A.T., G.S. Corchary and W.P. Williams

- 1968 Surficial geologic map of Yucca Flat, Nye and Lincoln Counties, Nevada. *U.S.G.S. Miscellaneous Geological Investigations Map I-550*.

Map that details sediments on Yucca Flat and nearby areas.

Hewlett, Richard G. And Francis Duncan

- 1972 *Atomic Shield: A History of the United States Atomic Energy Commission, Volume II*. U.S. Atomic Energy Commission, Washington D.C., reprinted from original 1969 edition, also available at the CIC Library, Las Vegas, document no. NV0034749.

A book that provides historical information on the activities of the U.S. Atomic Energy Commission.

Johnson, William Gray, Barbara A. Holz and Robert Jones

- 2000 *A Cold War Battlefield: Frenchman Flat Historic District, Nevada Test Site, Nye County, Nevada*, Desert Research Institute, Division of Earth and Ecosystem Sciences Cultural Resources Technical Report No. 97, Las Vegas.

This is a technical report. It provides historical context and justification for the National Register eligibility of the Well 5 Booster Stations.

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Tlachac, E.

1991 Nuclear Testing. In *Nevada Comprehensive Preservation Plan*, edited by W.G. White, R.M. James, and R. Bernstein, pp. 25-3 - 25-24. Nevada Division of Historic Preservation, Carson City.

A planning document, it is a technical report developed by the state of Nevada to identify themes and properties considered important to the history of the state.

U.S. Army

1951 Exercises Desert Rock II and III, General Plan. Sixth U.S. Army, Headquarters, Camp Desert Rock, Nevada.

A planning document, it details the activities of military participation in nuclear weapons tests during the mid 1950s.

U.S. Department of Energy

2000 *United States Nuclear Tests: July 1945 through September 1992*, U.S. Department of Energy, Nevada Operations Office, DOE/NV-209 (Rev. 15), Las Vegas.

This is a technical report that provides the names, dates and other pertinent information about nuclear weapons tests conducted by the U.S. government.

E. Likely Sources Not Yet Investigated: None.

F. Supplemental Material: See Attachment A for early engineering records.

#### PART IV. PROJECT INFORMATION

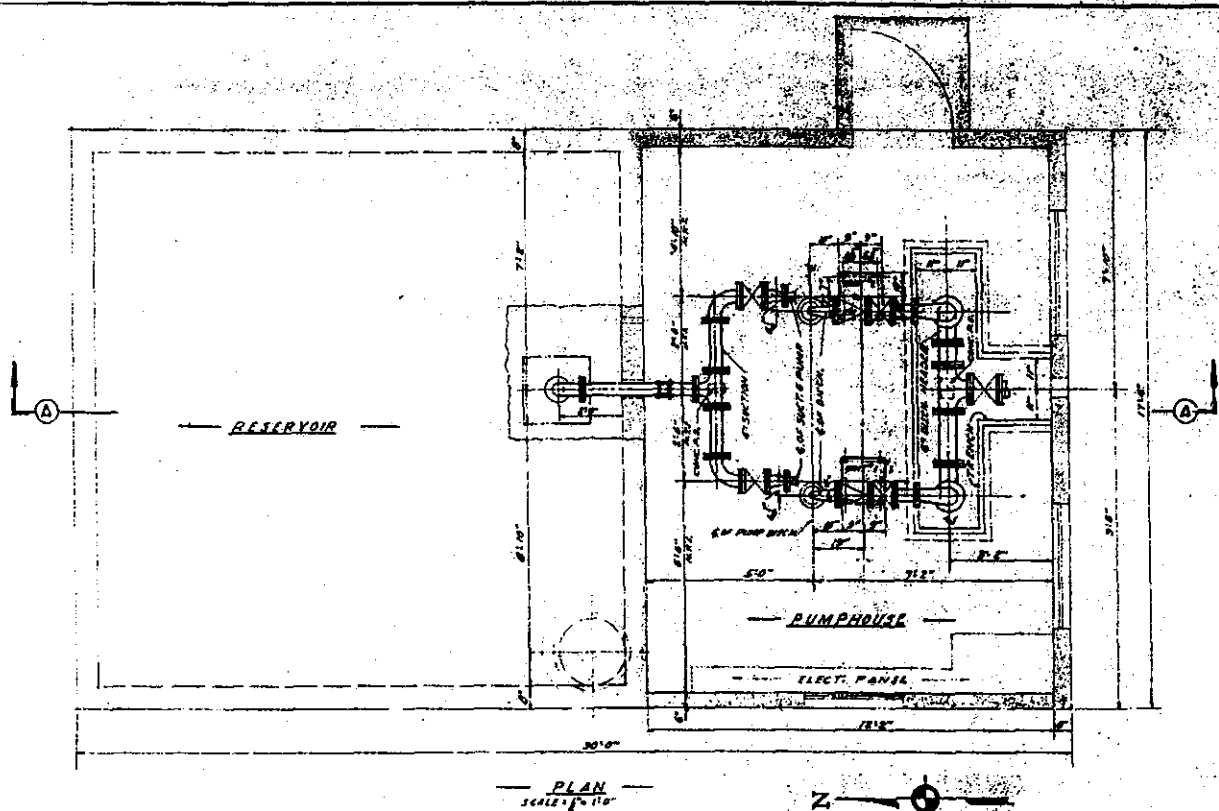
This is a mitigative recording project required by a Memorandum of Agreement (MOA) promulgated by the National Nuclear Security Administration, Nevada Operations Office (NNSA/NV) and agreed to by the Nevada State Historic Preservation Office. The MOA recognizes that demolition activities will result in an adverse effect to the structures. Stipulations of the MOA are 1) NNSA/NV ensures that HABS/HAER documentation, as recommended by the Western Regional Office of the National Park Service (NPS), will be completed for all four structures and approved by the NPS within six months of the date of the last signatory of the MOA, 2) copies of the HABS/HAER documentation will be sent to the Nevada State Historic Preservation Office in Carson City and the Nevada State Museum and Historical Society in Las Vegas and 3) a copy of the fully executed MOA and DRI'S Technical Report 97 will be sent to the Advisory Council on Historic Preservation in accordance with 36 C.F.R. 79, Part 800.6(b)(1)(iv).

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Desert Research Institute  
755 E. Flamingo Road, Las Vegas, NV 89119

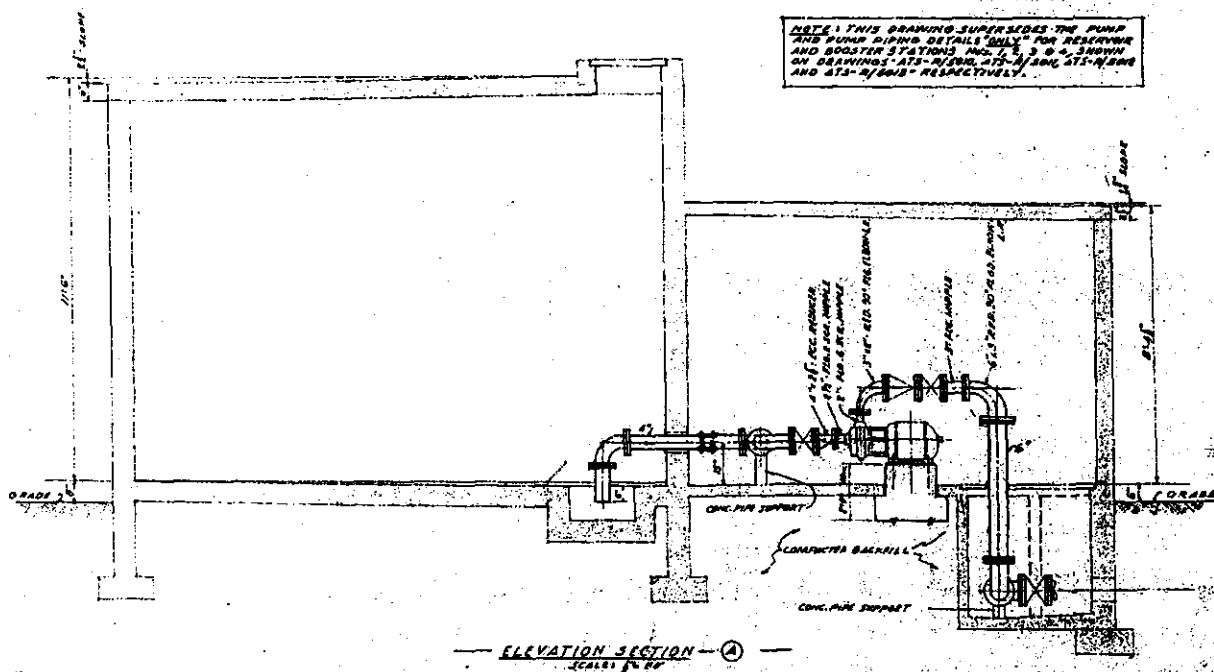
Date: July 9, 2001

**ATTACHMENT A**  
**EARLY ENGINEERING RECORDS**

Nevada Test Site, Frenchman Flat Test Facility, Well Five Booster Stations  
(Pumping Stations Nos. 1 - 4)  
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Engineering record of "Revision of pump piping for reservoir and booster station nos. 1, 2, 3, and 4," Holmes and Narver, 12-5-51, ATS-R/5014, featuring plan view (best copy available).



Engineering record of "Revision of pump piping for reservoir and booster station nos. 1, 2, 3, and 4," Holmes and Narver, 12-5-51, ATS-R/5014, featuring elevation section A view (best copy available).